

AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Currently Amended) ~~In a device~~ An apparatus for minimally invasive applications, the improvement comprising:

a first unit comprising a first structure for at least positioning and bending a portion of said device apparatus, said first structure including
a quantity of shape memory alloy in said portion and
a quantity of shape memory polymer in said portion,
said shape memory alloy having a longitudinally extending coiled configuration in said portion with more than one wrap, and

said shape memory polymer comprising a cylinder, wherein said portion is positioned in said device first unit such that changes in transition of said shape memory alloy causes said device first unit to bend change position; and

a second unit connected to said first unit, said second unit comprising a second structure for at least positioning said apparatus, said second structure including

a second quantity of shape memory alloy and
a second quantity of shape memory polymer,
said second quantity of shape memory alloy having a longitudinally extending coiled configuration with more than one wrap, and

said second quantity of shape memory polymer comprising a cylinder, wherein said portion is positioned in said second unit such that changes in transition of said shape memory alloy causes said second unit to change position thereby moving said apparatus.

3. (Currently Amended) The improvement of Claim 2, wherein said shape memory alloy is embedded within said shape memory polymer and said second shape memory alloy is embedded within said second shape memory polymer.

4. (Currently Amended) The improvement of Claim 2, wherein said shape memory alloy is positioned within said shape memory polymer and said second shape memory alloy is positioned within said second shape memory polymer.

5. (Currently Amended) The improvement of Claim 2, wherein said coil configuration of said first unit is longitudinally compressed and retained in said shape memory polymer so as to define a hollow tube cylinder with a wall surface and having said coil configuration embedded in said wall surface thereof and said coil configuration of said second unit is longitudinally compressed and retained in said second shape memory polymer so as to define a hollow tube cylinder with a wall surface and having said coil configuration embedded in said wall surface thereof.

6. (Currently Amended) The improvement of Claim 5, wherein said coil configuration of said first unit has an axis coaxial with an axis of said hollow tube cylinder and said coil configuration of said second unit has an axis coaxial with an axis of said hollow tube cylinder.

7. (Withdrawn) The improvement of Claim 5, wherein said coil configuration has an axis off-set from an axis of said hollow tube.

8. (Currently Amended) The improvement of Claim 2, including a plurality of additional structures each having a longitudinally extending coiled configuration of shape memory alloy located within ~~said~~ a shape memory polymer comprising a cylinder.

9. (Original) The improvement of Claim 8, wherein each coil configuration has a different configuration.

10. (Currently Amended) The improvement of Claim 8, wherein said plurality of ~~units~~ structures are in a series configuration to said first structure and said second structure.

11. (Currently Amended) ~~In a device~~ An apparatus for minimally invasive applications, ~~the improvement~~ comprising:

a structure for at least positioning and bending a portion of said ~~device~~ apparatus, said structure having an axis,

said structure including a quantity of shape memory alloy in said portion, and

a quantity of shape memory polymer in said portion,

said quantity of shape memory polymer is a cylinder, and

wherein said quantity of shape memory alloy is ~~wrapped around at least a portion of said shape memory polymer~~ positioned in said structure generally parallel to said axis and spaced from said axis, wherein said ~~portion~~ shape memory alloy is positioned in said device such that changes in transition of said shape memory alloy causes said ~~device~~ apparatus to bend.

12. (Currently Amended) The ~~improvement~~ apparatus of Claim 11, wherein said quantity of shape memory alloy has a ribbon configuration.

13. (Withdrawn) The improvement of Claim 1, wherein said quantity of shape memory alloy is composed of NiTiCu.

14. (Currently Amended) The ~~improvement~~ apparatus of Claim 11, wherein said quantity of shape memory alloy is composed of a plurality of shape memory alloy strips.

15. (Currently Amended) The ~~improvement~~ apparatus of Claim 11, wherein said quantity of cylindrical shape memory polymer has a closed cylinder configuration.

16. (Currently Amended) The ~~improvement~~ apparatus of Claim 15, wherein said quantity of shape memory alloy has a ~~closed tubular~~ coiled spring configuration located within said shape memory polymer.

17. (Currently Amended) The ~~improvement~~ apparatus of Claim 15, wherein said quantity of shape memory alloy is composed of a plurality of strips, and wherein said strips are located in a wall surface of said shape polymer.

18. (Currently Amended) The ~~improvement~~ apparatus of Claim 17, wherein said plurality of strips are in said wall surface in a direction selected from the group consisting longitudinal and radial with respect to an axis of said configuration.

19. (Currently Amended) The ~~improvement~~ apparatus of Claim 17, wherein said plurality of strips are in a spaced longitudinal relationship.

20. (Currently Amended) The ~~improvement~~ apparatus of Claim 18, wherein said plurality of strips are located spaced radial relationships.

21. (Currently Amended) The ~~improvement~~ apparatus of Claim 17, wherein said plurality of strips are located in openings in said shape memory polymer.

22. (Currently Amended) The ~~improvement~~ apparatus of Claim 15, wherein said quantity of shape memory alloy is composed of a plurality of sections embedded in said shape memory polymer.

23. (Withdrawn) The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of net-like configuration attached to said tubular configuration.

24. (Withdrawn) The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of a compressed spring located in a wall surface of tubular configuration.

25. (Withdrawn) The improvement of Claim 15, wherein said quantity of shape alloy is composed of a plurality of bent sections located in openings said tubular configuration.

26. (Withdrawn) The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of a plurality of ribbons mounted in spaced relation around said tubular configuration.

27. (Withdrawn) The improvement of Claim 16, wherein said plurality of ribbons are of mesh configuration and mounted to a said tubular configuration support members.

28. (Currently Amended) The ~~improvement~~ apparatus of Claim 11, wherein said quantity of shape memory alloy has a ~~mesh, tubular~~ coiled spring configuration, wherein said quantity of shape memory polymer is a cylinder and wherein said ~~mesh, tubular~~ coiled spring configuration is embedded in said shape memory polymer.

29. (Withdrawn) The improvement of Claim 1, wherein said quantity of shape memory alloy comprises a plurality of strips, wherein said quantity of shape memory polymer is a tubular configuration and includes a plurality of longitudinally extending openings and a plurality of longitudinal slots, wherein said plurality of strips are located in said plurality of longitudinally extending slots.

30. (Withdrawn) The improvement of Claim 29, additionally including a plurality of light diffusers mounted in certain of said longitudinally extending openings.

31. (Withdrawn) The improvement of Claim 29, wherein said tubular configuration is constructed to mate up to a catheter having a plurality of longitudinally extending openings, whereby said slots and

openings in said tubular configuration align with said openings in said catheter.

32. (Currently Amended) The improvement apparatus of Claim 11, ~~comprising a plurality of units each having a coiled configuration of shape memory alloy and a cylindrical configuration of shape memory polymer, said units being connected in series and connected to~~ including a light source connected to said apparatus via a plurality of optical fibers ~~in a catheter~~ and light control mechanism.

33. (Currently Amended) The ~~improvement~~ apparatus of Claim 32, wherein ~~each coiled configuration has a different configuration~~ said light source is a laser.

34. (Currently Amended) An articulated tip for a catheter that has a central axis, comprising

a composite of shape memory alloy forming a portion of said articulated tip with said composite of shape memory alloy having an axis that is offset from said central axis of the articulated tip for a catheter

and shape memory polymer forming a portion of said articulated tip, wherein said shape memory polymer comprises a cylinder, and wherein said ~~portion~~ composite of shape memory alloy is positioned in said articulated tip such that changes in transition of said shape memory alloy causes said articulated tip to bend.

35. (Currently Amended) A device for reversible fine positioning of an object, comprising:

a member constructed of shape memory polymer, wherein said shape memory polymer comprises a cylinder and said cylinder has a cylinder central axis,

said member including a shape memory alloy with a shape memory alloy axis located in or adjacent to said member in a position wherein said shape memory axis is offset from said cylinder central axis that will cause said device to bend upon a change in configuration of said shape memory alloy, and

means for selectively heating said shape memory alloy to cause a change in configuration thereof, whereby the change in configuration results in reversible positioning of said object.